



Serial No.: 10/709,485

Confirmation Number: 3484

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### **REMARKS**

The present response is intended to be fully responsive to all points of rejection raised by the Examiner and is believed to place the application in condition for allowance. Favorable reconsideration and allowance of the application is respectfully requested.

Applicants assert that the present invention is new, non-obvious and useful. Prompt consideration and allowance of the claims is respectfully requested.

### **Status of Claims**

Claims 1-14 and 21 had been rejected on obviousness grounds and in response, claim 1 has been amended to more particularly point out and distinctly claim the invention for which protection is being sought, namely by further adding the limitation of "signal processing" restriction to the previous limitation of "open air-interface or wireless BIOS architecture". In addition, more detailed distinction to the cited art has been respectfully contended.

Claims 2-14 and 21 have also been amended to more particularly point out and distinctly claim the invention for which protection is being sought, by limiting the invention to the "open wireless BIOS signal processing architecture".

Claims 15-20 and Claims 22-26 had been cancelled.

Claims 1-14 and 21 are currently pending in the present invention.

**IN RESPONSE TO THE OFFICE ACTION:**

**35 USC § 103**

Applicants respectfully traverse the rejections of Claims 1-14 and 21 under 35 USC § 103 as being unpatentable over Bushnell et al, Wee et al, Guo and Lockhart, because a prima facie case of obviousness has not been established, as explained below.

As to claim 1, the Examiner states that Bushnell et al disclosed a dual mode telephone station set with one directory number which can read on our invention of “wireless communication terminal device supporting different wireless open air interfaces in the same device with same unique identifier based on open air-interface BIOS signal processing architecture and capable of communicating with other devices, systems or networks through said open air interfaces”.

Applicants contend that Bushnell et al limits to dual model telephone supporting specific cordless and specific cellular standard only. Bushnell et al never teach or suggest supporting multiple wireless standards based on the open air interface BIOS (basic input/output system) signal processing architecture where the various wireless standards are mapped into open interface parameters for the BIOS based signal processing method. Furthermore, Bushnell et al limits to POTS network infrastructure only.

Further to claim 1, the Examiner states that Bushnell et al disclosed a cordless base station which can read on our invention of “open computer system equipped with full networking facilities to access various different backbone networks either through wireline networking interfaces or through broadband wireless communication systems of said open air interfaces” and “said base transceiver system connecting to said computer system wirelinely to construct the open base-station as a whole”.

Applicants contend that Bushnell et al. does not teach or suggest a computer system or base station to access various different backbone networks through broadband wireless

communication systems of said open air-interfaces. Applicants point out that in Bushnell et al. column 5, line 57 – column 6, line 24, and FIG 3-5, the cordless base station connects to the backbone networks through fixed wireline connection limited to POTS only.

Applicants respectfully request the Examiner explicitly state what he understands in our invention as the “open computer system” which is a networking access equipment to the backbone networks through either the wireline network interface unit or the broadband wireless system of the open air-interfaces, such as IEEE802.16 standards or microwave radio standards, if the Examiner rejects Applicants argument.

Applicants further point out that in Bushnell et al. FIG3-5 and the corresponding descriptions, the cordless base station is only limited to the traditional POTS line for call forwarding and re-routing between cordless and cellular modes which is totally different from our invention of open interface architecture by signal processing methods.

Further to claim 1, the Examiner states that Bushnell et al disclosed the dual mode telephone operates as a cellular telephone or a cordless telephone which can read on our invention of “said wireless terminal device connecting to different wireline networks through its wireline network interface unit (NIU) in said wireless terminal device”.

Applicants content that in Bushnell et al. FIG3-5 and the corresponding descriptions, there was never a teaching or suggestion to support the dual mode telephone to connect to the wireline network directly and wirelinely. However, applicants’ invention can facilitate the said wireless terminal device to plug-in the wireline network socket through said wireline NIU to save the over-the-air wireless spectrum whenever the wireline networking is available. In contrast, Bushnell et al’s dual mode telephone must rely on the over-the-air wireless link to connect to the cordless base station or the wireline network.

Further to claim 1, the Examiner states that Wee et al disclosed a portable wireless system that may be configured to operate as a third party wireless repeater which can read on our invention of “said base-station connecting to other said base-station either over the wireline

networks or over broadband wireless access system through said computer system, or through said base transceiver system of said open air interfaces in an ad-hoc mode”, and “said wireless terminal device connecting directly to other said wireless terminal device through said open air interfaces in an ad-hoc mode”. However, the Examiner agrees that Bushnell et al failed to expressly disclose such invention.

Applicants content that in Wee et al. FIG1, the cellular telephone can function as a Repeater, but not a base station because it is totally controlled by its subscribed service provider and its channel resource is very limited as an individual subscriber of the cellular network. Furthermore, each cellular telephone has no capability and possibility to connect each other directly without going through the backbone cellular wireless network.

Applicants also point out that, though already agreed by the Examiner, in Bushnell et al. FIG3-7 and corresponding descriptions, the different cordless base stations do not connect each other directly through wireless air link. Also, the different dual mode telephones do not connect each other directly through wireless link without going through the backbone wireless or wireline networks.

Last in claim 1, the Examiner states that Lockhart disclosed a base station in a radio communication system capable of receiving reverse channel data using two over the air protocols which can read on our invention of “an open base transceiver system supporting various different air interfaces based on said open air-interfaces BIOS signal processing architecture to interconnect said wireless communication terminal device through said open air interfaces”. However, the Examiner agrees that both Bushnell et al and Wee failed to disclose such invention.

Applicants content that Lockhart limits to reverse channel multiple medium access control (MAC) protocols only. Lockhart never teaches or suggests supporting multiple wireless standards, both in the forward and reverse channels, based on the open air interface BIOS signal processing architecture where the various wireless standards are mapped into open interface parameters for the BIOS based signal processing method.

Applicants further content that Lockhart limits to the reverse MAC protocols including transmission scheduling and resource sharing in the reverse channel only. However, our invention is based on signal processing of open air interfaces through said open air interfaces BIOS architecture which are totally different and unrelated.

Applicants understand that the Examiner uses Lockhart in rejecting our claimed element “open air interface BIOS signal processing architecture” which the Examiner has repeated six times in the office action covering claims 1, 2, 6, 7, 13 and 21.

Applicants respectfully content that Lockhart failed to disclose our invention because our invention is on the whole system architecture implementation, but Lockhart is limited to the reverse (uplink) medium access control (MAC) protocols comprising scheduling multiple air protocols in one reverse channel.

It is respectfully asserted that the distinguishing features of claim 1, as discussed above, would not have been obvious at the time the invention was made to a person skilled in the art, in view of Bushnell et al, Lockhart, Wee et al., alone or in combination with any other cited references.

In asserting this rejection, these separate prior art references had to be combined. However, that combination failed to include the claim element of several system components based on “open air-interface BIOS signal processing architecture.” Prima facie obviousness is lacking because claim 1 recites this missing element.

Based on the preceding arguments, Applicants respectfully maintain that claim 1 is not unpatentable over Bushnell et al in view of Wee et al with Lockhart and is in condition for allowance. Since claims 2-14 and 21 depend from claim 1, Applicants respectfully maintain that claims 2-14 and 21 are likewise in condition for allowance.

Claims 2-14 and 21 have been amended to further limit to the open air-interface BIOS signal processing architecture.

As to Claim 2, Applicants contend that Bushnell et al never teaches or suggests an open processing engine, reconfigurable and open digital converter, programmable and open radio frequency module and smart antenna processing module, and open wireless BIOS signal processing architecture because in Bushnell et al. FIG3 and (column 4, line 59 – column 5, line 55), the dual mode handset just simply integrates the cordless phone with the cellular phone without defining the common and open interface platform based on said open air interface BIOS signal processing architecture.

Applicants further contend that simply integration of cordless and cellular phone functions does not automatically result in the open architecture platform which is independent of the backbone networks. Applicants point out that in Bushnell et al. FIG3 and (column 4 – column 5), the dual mode phone is fully dependent to the backbone POTS line and MSC/HLR.

Applicants further point out that in Wee et al. paragraph 33, the separate module (e.g., a PC card, such as a PCMCIA card) is a specific functional module rather than an open software definable module (SDM) defined by said open wireless BIOS signal processing architecture. The Examiner agrees that Bushnell et al failed to disclose such invention of “software definable module”.

As to Claim 3, Applicants contend that our disclosed system modules are open air-interface modules which are independent to the network infrastructure. However, in Bushnell et al. FIG3-5 and column 4-5, the dual mode handset and cordless base-station are limited to the call re-routing and forwarding functions fully dependent to the corresponding POTS line and specific cellular network.



As to Claim 4, Applicants content that Bushnell et al. and Wee et al. do not teach or suggest “system software, application software and real-time OS running upon the system hardware through said open wireless BIOS signal processing architecture.”

As to Claim 5, Applicants content that Bushnell et al. and Wee et al. do not teach or suggest “open processing engine, based on open wireless BIOS signal processing architecture.”

As to Claim 6, Applicants respectfully point out that in Wee et al. paragraph 31, there is never any disclosure on the utilization of third party wireless repeater to become a router which is of totally different system architecture. The Examiner agrees that Bushnell et al failed to disclose such invention.

Claim 6 has been amended to include “by integrating said interface parameters through said open wireless BIOS signal processing architecture” to further limit the scope.

As to Claim 7, Applicants respectfully point out that in Wee et al. paragraph 31, there is never any disclosure on the utilization of third party wireless repeater to become a base station or a mobile base station which is of totally different architecture from a repeater. A repeater is just a simple transmission relay equipment without access control protocols, mobility management and resource management, etc which are required in base station systems. The Examiner agrees that Bushnell et al failed to disclose such invention.

As to Claim 8, Applicants respectfully point out that Bushnell et al. (see FIG3-5) is limited to specific networks requiring MSC, HLR and POTS line. Applicants further point out that both Bushnell et al. and Wee et al. never teach or suggest supporting open air interfaces by open wireless BIOS signal processing architecture. Support of CDMA does not automatically deliver the capability of supporting other air interfaces.

As to Claim 9, Applicants point out that Bushnell et al. column 4, lines 59-64 only tells how to transfer calls between cordless and cellular. Bushnell et al. never teach or suggest detecting multiple open air interfaces.

Claim 9 has been amended to further limit to the signal processing architecture of the disclosed invention.

As to Claim 10, Applicants respectfully point out that in Bushnell et al. FIG3-5 and column 4, lines 59-64, the dual mode telephone station is not an open base station supporting multiple open air interfaces through open interface parameters of said open wireless BIOS signal processing architecture.

As to Claim 11, Applicants respectfully point out that Bushnell et al. FIG3-5 and column 4, lines 59-64 only limit to dual mode specific standards without teaching or suggesting open air interfaces by open wireless BIOS signal processing architecture.

As to Claim 13, Applicants content that in Wee et al. paragraph 33, the separate module (e.g., a PC card, such as a PCMCIA card) is more a specific hardware module rather than an open software module defined by said open wireless BIOS signal processing architecture. The Examiner agrees that Bushnell et al failed to disclose such invention.

As to Claim 12, Applicants respectfully content that Guo paragraph 42 is only limited for base station only, not applied to terminal system. The Examiner agrees that Bushnell et al, Wee et al and Lockhart failed to disclose such invention.

Claim 12 has been amended to cancel the beamforming algorithm and diversity algorithm and to limit the antenna array processing, interface mitigation and spatial multiplexing within said open wireless BIOS signal processing architecture.



As to Claim 14, Applicants respectfully point out that Bushnell et al. (column 4, lines 59-64) dual mode handset is simply integrating cellular and cordless phones and is not an open convergence capability. Applicants further point out that Bushnell et al. FIG3-5 is totally limited to traditional circuit switching networks requiring POTS line and traditional cellular telephone networks requiring MIN/HLR in the traditional MSC.

As to Claim 21, Applicants respectfully content that Bushnell et al limits to dual mode handset running on fixed dual modes without capabilities in supporting open air interfaces. Applicants further point out that Wee et al limits to third party wireless repeater without teaching or suggesting a connection method for ad-hoc mode. Applicants further content that support of CDMA does not automatically result in open spectrum management because the current CDMA networks only work in a fixed spectrum band.

Claim 21 has been amended to cancel the system hardware and peripherals, and limit the software modules within said open wireless BIOS signal processing architecture.

The Examiner has repeated many times of same statement in unrelated claims which the applicants believe are mistakes, for example, the statement of page 4, line 5-19 has been repeated in page 6, line 3-16; page 8, line 18 – page 9, line 10; page 10, line 3-17; page 13, line 1-14; page 16, line 17 – page 17, line 10. Other statements have been repeated wrongly too. The Applicants have contented each statement completely and fully.

It is respectfully asserted that the distinguishing features of amended claims 2-14 and 21, as discussed above, would not have been obvious at the time the invention was made to a person skilled in the art, in view of cited references. Therefore, it is respectfully requested that the rejection of claims 2-14 and 21 be withdrawn at least for the reasons set forth above.

Accordingly, Bushnell et al, Wee et al, Guo and Lockhart, alone or in combination, fail to teach or suggest all the limitations of Claims 1-14 and 21. Based on the preceding


arguments, Applicants respectfully maintain that claims 1-14 and 21 are not unpatentable over Bushnell et al in view of Wee et al and Guo with Lockhart, and are in condition for allowance.

## CONCLUSION

The present communication is intended to be fully responsive to all points of rejection raised by the Examiner and is believed to place the application in condition for allowance. Favorable reconsideration and allowance of the application is respectfully requested. It is submitted that the application is now in condition for allowance. Prompt notice of allowance is respectfully requested.

Respectfully submitted,

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06/29/07